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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,921	06/06/2000	WOLFGANG KAUFHOLD	MO-5726/LEA	9638

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BAYER CORPORATION
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EXAMINER

SERGEANT, RABON A

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/555,921	KAUFHOLD ET AL.	
	Examiner	Art Unit	
	Rabon Sergent	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,7,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 1, 2, 4, 7, 10, and 11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for products and processes wherein components (A), (B), and (C) are homogeneously premixed within a period of at most 5 seconds, does not reasonably provide enablement for products and processes wherein the homogeneous premix step has been omitted. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. Within the specification, applicants have clearly disclosed that the homogeneous premix step is an integral part of the disclosed process. Furthermore, applicants have failed to provide any guidance suggesting that this step can be omitted while still realizing the properties ascribed to the polyurethane elastomers.

2. Applicants' response has been considered; however, it is not seen that the response in any way clearly addresses the concerns of the examiner. Applicants' reference to page 3, lines 4-6 is considered to support the examiner's position that the aforementioned premix step is required, and applicants' argument concerning the type of reactor is immaterial. Applicants' argument in no way negates the very citation that applicants have referred to. Regardless of the reaction step, applicants disclose that the reactants are homogeneously premixed within a period of at most 5 seconds.

3. Claims 1, 2, 4, 7, 10, and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants' claims

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require that a thermoplastic polyurethane elastomer is formed within a static mixer, wherein the residence time within the static mixer is less than 5 seconds. Therefore applicants' claims require that complete polymerization occurs within the static mixer within less than 5 seconds. However, applicants have failed to disclose how one is to prevent the static mixer from becoming blocked with the presumably viscous, formed elastomeric composition or how one is to force the presumably viscous, formed elastomeric composition through the static mixer. As molecular weight builds during the reaction, the viscosity must increase; therefore, the pressure must increase within the static mixer. Applicants have provided no guidance that would instruct one how to deal with the resultant pressure/viscosity increase while maintaining a residence time of less than 5 seconds, wherein complete reaction must occur. The examiner has considered the examples; however, it is clear from the examples that complete reaction does not occur within the static mixer, since the examples disclose that reaction occurs separately from the static mixer and since no pressure increase is noted within the static mixer. Applicants' response that the elastomer is pushed out of the static mixer by the introduction of the monomers in no way addresses the issue of how the process is to be controlled so that fully reacted polyurethane can be produced continuously within the static mixer, wherein the residence time is less than 5 seconds.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

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claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 4, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirchmeyer et al. ('252) in view of Rausch et al. ('964).

The primary reference discloses the continuous production of polyurethane elastomers, wherein the reactant components are rapidly mixed prior to reaction or at an early stage of the reaction, so as to obtain more uniform mixing and reaction. Kirchmeyer et al. disclose the use of static mixers.

6. While the primary reference fails to disclose the use of reactant streams having comparable temperatures, the use of comparable temperatures for reactant streams used for the continuous production of thermoplastic polyurethanes was a known and conventional practice at the time of invention. Rausch et al. are concerned with the production of a thermoplastic polyurethane, and the examples of Rausch et al. clearly disclose that the two reactant streams were heated to the same temperature of 140°F (60°C).

7. Therefore, in accordance with the goals, of the primary reference, of obtaining more uniform and homogeneous mixtures, the position is taken that one would have been motivated to introduce the streams for mixing at comparable temperatures (as was done in the secondary reference), so as to obtain a reactant composition having increased uniformity and increased

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efficiency of formulation.

8. Applicants have argued that the process of Kirchmeyer et al. occurs within two static mixers in series (the first mixer is for the premixing step and the second mixer is for the reaction), whereas applicants' process is performed within a single static mixer. Applicants' inference is that this difference distinguishes the instant claims from the process of Kirchmeyer et al. However, applicants' argument is flawed. There is absolutely no language within the instant claims that excludes the argued first static mixer of Kirchmeyer et al. or requires that the reactants not be mixed prior to entering the instantly claimed static mixer. The claims merely require that reactants be "continuously introduced and reacted in a static mixer". This language is fully met by Kirchmeyer et al.

9. Applicants have argued that the residence times, disclosed by Kirchmeyer et al. exceed those claimed by applicants. In response, it is noted that the residence times of the reference, referred to by applicants, are preferred times; therefore, these times are not mandated by the reference. Firstly, the position is taken that the selection of the residence time amounts to the obvious selection or manipulation of a result effective variable. Secondly, the position is further taken that the respective residence times are close enough that one would have expected the processes to yield equivalent products. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). MPEP 2144.05. It is not seen that applicants' statement that the residence times of Kirchmeyer et al. are not reasonably (remotely) equivalent to those of the instant invention is germane to the issues at hand. The examiner has not argued that the residence times are equivalent, and applicants have provided no showing of unexpected results with respect to the residence times.

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10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.


RABON SERGENT
PRIMARY EXAMINER

R. Sergent
May 16, 2004